first conducting layer disposed on a other surface of the first substrate, with the first conducting layer including a plurality of slotted openings arrayed about an antenna axis;

a second substrate of the plurality of nonconducting substantially planar substrates, stacked on the first substrate, and having a second conducting layer disposed on a surface of the second substrate, with the second conducting layer including a multiplicity of slotted openings arrayed about an antenna axis;

a third substrate of the plurality of nonconducting substantially planar substrates, stacked on the second substrate, and having a third conducting layer disposed on a surface of the third substrate;

a lossy-dielectric-magnetic material for enclosing sides and rear of the multifrequency antenna, for preventing electromagnetic energy penetration through the rear and sides of the multifrequency antenna, with the multifrequency antenna thereby radiating and receiving electromagnetic energy from a front of the multifrequency antenna; and

an edge-diffraction reflector attached to rear of the multifrequency antenna, including at least two conducting plates and a plurality of conducting cylinders with height essentially shorter than a diameter along an axis of the multifrequency antenna.

2. (previously presented) The multifrequency antenna as set forth in claim 1, with the at least two conducting plates

having an essentially circular shape.

3. (previously presented) The multifrequency antenna as set forth in claim 1, with the plurality of nonconducting substantially planar substrates, with the conductive layer disposed on the surface of each planar substrate of the plurality of nonconducting substantially planar substrates, including a printed circuit board having a metallic surface on one side.

4. (previously presented) The multifrequency antenna as set forth in claim 1, with the first substrate of the plurality of nonconducting substantially planar substrates, having the first conducting layer including the plurality of slotted openings arrayed about then antenna axis including at least four slotted openings spaced about the antenna axis at ninety degrees.

5. (previously presented) The multifrequency antenna as set forth in claim 4, with the second substrate of the plurality of nonconducting substantially planar substrates, having the second conducting layer including the plurality of slotted openings arrayed about then antenna axis including at least four slotted openings spaced about the antenna axis at ninety degrees.

6. (previously presented) The multifrequency antenna as

set forth in claim 1, with the each conductive layer on each of the plurality of nonconducting substantially planar substrates, having a circular shape.

7. (previously presented) The multifrequency antenna as set forth in claim 1, with the each conductive layer on each of the plurality of nonconducting substantially planar substrates, having any of a square, rectangular, oval, triangular, pentagon, hexagon, or octagon shape.

8. (previously presented) The multifrequency antenna as set forth in claim 1, with the edge-diffraction reflector attached to rear of the multifrequency antenna, including at least five conducting plates.

9. (previously presented) The multifrequency antenna as set forth in claim 1, with the each conducting plate having a circular shape.

10. (previously presented) The multifrequency antenna as set forth in claim 1, with the each conducting plate having any of a square, rectangular, oval, triangular, pentagon, hexagon, or octagon shape.

11. (previously presented) An improvement to a multifrequency antenna comprising:

a lossy-dielectric-magnetic material for enclosing

sides and rear of the multifrequency antenna, for preventing electromagnetic energy penetration through the rear and sides of the multifrequency antenna, with the multifrequency antenna thereby radiating and receiving electromagnetic energy from a front of the multifrequency antenna; and

an edge-diffraction reflector attached to rear of the multifrequency antenna, including at least two conducting plates and a plurality of conducting cylinders with height essentially shorter than a diameter along an axis of the multifrequency antenna.

12. (previously presented) The multifrequency antenna as set forth in claim 11, with the edge-diffraction reflector attached to rear of the multifrequency antenna, including at least five conducting plates.

13. (previously presented) The multifrequency antenna as set forth in claim 11, with the each conducting plate having a circular shape.

14. (previously presented) The multifrequency antenna as set forth in claim 11, with the each conducting plate having any of a square, rectangular, oval, triangular, pentagon, hexagon, or octagon shape.

15. (currently amended) A multifrequency antenna comprising:

a plurality of nonconducting substantially planar substrates, with a conductive layer disposed on a surface of each planar substrate of the plurality of nonconducting substantially planar substrates;

a first substrate of the plurality of nonconducting substantially planar substrates, having a transmission line disposed on a rear surface of the first substrate, and having a first conducting layer disposed on a other surface of the first substrate, with the first conducting layer including a plurality of slotted openings arrayed about an antenna axis;

a second substrate of the plurality of nonconducting substantially planar substrates, stacked on the first substrate, and having a second conducting layer disposed on a surface of the second substrate, with the second conducting layer including a multiplicity of slotted openings arrayed about an antenna axis; ~~and~~

a third substrate of the plurality of nonconducting substantially planar substrates, stacked on the second substrate, and having a third conducting layer disposed on a surface of the third substrate, and

a lossy-dielectric-magnetic material for enclosing sides and rear of the multifrequency antenna, for preventing electromagnetic energy penetration through the rear and sides of the multifrequency antenna, with the multifrequency antenna thereby radiating and receiving electromagnetic energy from a front of the multifrequency antenna.

Cancel claim 16.

Claim 16 (cancelled)

17. (previously presented) The multifrequency antenna as set forth in claim 15 further including an edge-diffraction reflector attached to rear of the multifrequency antenna, including at least two essentially circular, conducting plates and a plurality of conducting cylinders with height essentially shorter than a diameter along an axis of the multifrequency antenna.

18. (previously presented) The multifrequency antenna as set forth in claim 17, with the at least two conducting plates having an essentially circular shape.

19. (previously presented) The multifrequency antenna as set forth in claim 15, with the plurality of nonconducting substantially planar substrates, with the conductive layer disposed on the surface of each planar substrate of the plurality of nonconducting substantially planar substrates, including a printed circuit board having a metallic surface on one side.

20. (previously presented) The multifrequency antenna as set forth in claim 15, with the first substrate of the plurality of nonconducting substantially planar substrates, having the first conducting layer including the plurality of slotted

openings arrayed about then antenna axis including at least four slotted openings spaced about the antenna axis at ninety degrees.

21. (previously presented) The multifrequency antenna as set forth in claim 20, with the second substrate of the plurality of nonconducting substantially planar substrates, having the second conducting layer including the plurality of slotted openings arrayed about then antenna axis including at least four slotted openings spaced about the antenna axis at ninety degrees.

22. (previously presented) The multifrequency antenna as set forth in claim 15, with the each conductive layer on each of the plurality of nonconducting substantially planar substrates, having a circular shape.

23. (previously presented) The multifrequency antenna as set forth in claim 15, with the each conductive layer on each of the plurality of nonconducting substantially planar substrates, having any of a square, rectangular, oval, triangular, pentagon, hexagon, or octagon shape.

24. (previously presented) The multifrequency antenna as set forth in claim 17, with the edge-diffraction reflector attached to rear of the multifrequency antenna, including at least five conducting plates.